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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/022,362      | 12/20/2001  | Minoru Teshima       | Q67642              | 3575             |

7590 01/12/2005

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Washington, DC 20037

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| EXAMINER |
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DOVE, TRACY MAE

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| ART UNIT | PAPER NUMBER |
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1745

DATE MAILED: 01/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/022,362

Applicant(s)

TESHIMA ET AL.

Examiner

Tracy Dove

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 January 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

This Office Action is in response to the communication filed on 1/3/05. Applicant's arguments have been considered, but are not persuasive. Claims 1-9 are pending and remain rejected in view of the prior art.

#### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/3/05 has been entered.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al., JP 11-354152 in view of Perton et al., US 5,472,809.

A machine translation of the Japanese document was obtained from the Japanese Patent Office web site.

Suzuki teaches a non-aqueous secondary battery containing a negative electrode, a positive electrode, a separator and an electrolyte comprising an organic solvent and a solute (abstract). The negative electrode material may be a carbonaceous material such as graphite

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(0020). The organic solvent contains at least one compound having the structure shown by the formula (I), such as phenylethylene carbonate (R=hydrogen) (abstract). The compound of formula (I) is contained in an amount of 0.05-40 wt%, preferably 0.1-20 wt% of the organic solvent (0017). The organic solvent may further contain ethylene carbonate, propylene carbonate, butylene carbonate, dimethyl carbonate (chain carbonate), diethyl carbonate (chain carbonate), ethyl methyl carbonate (chain carbonate), a cyclic ester, a chain ester, a chain ether, a cyclic ether or mixtures thereof. Two or more kinds of these solvents may be mixed together (0016). Suzuki teaches a solvent mixture comprising phenylethylene carbonate, ethylene carbonate and diethyl carbonate (chain carbonate). The phenylethylene carbonate is added to a 50:50 vol% mixture of ethylene carbonate and diethyl carbonate (0024).

Suzuki does not explicitly teach the volume percent ranges of ethylene carbonate and propylene carbonate of the instant claims.

However, Perton teaches a non-aqueous secondary battery comprising an electrolyte solvent mixture made up of:

5% to 40% by volume of propylene carbonate;

10% to 20% by volume of ethylene carbonate; and

50% to 85% by volume of dimethyl carbonate (chain carbonate).

See abstract. A preferred mixture comprises 20 vol% propylene carbonate, 20 vol% ethylene carbonate and 60 vol% dimethyl carbonate. Another preferred mixture comprises 15 vol% propylene carbonate, 15 vol% ethylene carbonate and 70 vol% dimethyl carbonate (col. 2, lines 4-18).

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Therefore, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because one of skill would have been motivated to use the solvent mixture of Perton for the organic solvent containing phenylethylene carbonate of Suzuki because Suzuki discloses a phenylethylene carbonate is added to a solvent mixture wherein the solvent mixture may contain ethylene carbonate, propylene carbonate and a chain carbonate. One of skill would be motivated to use the solvent mixture of Perton in Suzuki to improve performance at low temperature, to improve cycling efficiency and to improve the stability of the electrolyte (see Perton col. 1, lines 43-56). One of skill would be motivated to combine the teachings of Suzuki and Perton because both references are directed toward non-aqueous secondary batteries comprising an electrolyte including a mixture of organic solvents.

***Response to Amendment***

The declaration under 37 CFR 1.132 filed 12/3/04 is insufficient to overcome the rejection of claims 1-9 based upon Suzuki et al., JP 11-354152 in view of Perton et al., US 5,472,809 as set forth in the Office action because: the declaration does not distinguish the claimed invention over the prior art of record. Suzuki teaches the electrolyte solvent may contain a mixture of ethylene carbonate, propylene carbonate and a chain carbonate (0016). Phenylethylene carbonate is added to the electrolyte mixture (Suzuki). Furthermore, the percentages of the claimed solvent mixture are taught by Perton. Suzuki is not limited to any particular example and the rejection is based upon a combination of Suzuki and Perton to reject the claimed invention as obvious in view of the prior art. Examiner points out that unexpected results are not shown by the declaration because Comparative Example B (which Applicant asserts is disclosed by Suzuki) and Example D (which Applicant asserts is the claimed invention)

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teach the same initial irreversible capacity (21 mAh/g). Furthermore, Comparative Example B is not commensurate in scope with the teaching of Suzuki and, likewise, Example D is not commensurate in scope with the claimed invention. The declaration shows that that addition of phenylethylene carbonate in Comparative Example B reduces the initial irreversible capacity of Comparative Example A. Thus, it is unclear what Applicant is attempting to show is "unexpected".

Examiner emphasizes that the rejection is a 35 U.S.C. 103(a) rejection based upon a combination of references. Applicant has not shown evidence of unexpected results that distinguish the claimed invention of the prior art of record.

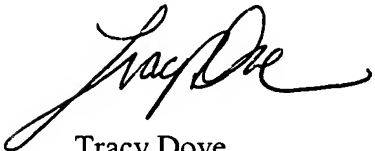
#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is 571-272-1285. The examiner can normally be reached on Monday-Thursday (9:00-7:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Tracy Dove", with a stylized, flowing script.

Tracy Dove  
Patent Examiner  
Technology Center 1700  
Art Unit 1745

January 10, 2005